

Central Electricity Authority
System Planning & Project Appraisal Division
Sewa Bhawan, R.K. Puram, New Delhi – 110066.

No. 51/4/SP&PA-2009/ 920 - 929

Date: September 04, 2009

To

1.The Member Secretary, Southern Regional Power Committee, 29, Race Course Cross Road, Bangalore 560 009. FAX : 080-22259343	2.The Director (Projects), Power Grid Corp. of India Ltd. “Saudamini”, Plot No.2, Sector-29, Gurgaon 122 001, Haryana. FAX : 95124-2571932
3.The Director (Transmission), Transmission Corp. of Andhra Pradesh Ltd., Vidyut Soudha, Hyderabad – 500 082. FAX : 040-66665137	4.The Director (Transmission), Karnataka State Power Transmission Corp.Ltd., Cauvery Bhawan, Bangalore 560 009. FAX : 080 -22228367
5.The Member (Transmission), Kerala State Electricity Board, Vidyuthi Bhawanam, Pattom, P.B. No. 1028, Thiruvananthapuram - 695 004. FAX : 0471-2444738	6. Member (Distribution), Tamil Nadu electricity Board (TNEB), 6 th Floor, Eastern Wing, 800 Anna Salai, Chennai - 600002. FAX : 044-28516362
7.The Director (Power), Corporate Office, Block – I, Neyveli Lignite Corp. Ltd., Neyveli , Tamil Nadu – 607 801. FAX : 04142-252650	8.The Superintending Engineer –I, First Floor, Electricity Department, Gingy Salai, Puducherry – 605 001. FAX : 0413-2334277/2331556
9. Director (Projects), National Thermal Power Corp. Ltd. (NTPC), NTPC Bhawan, Core-7, Scope Complex, Lodhi Road, New Delhi-110003. FAX-011-24360912	10. Director (Operations), NPCIL, 12 th Floor, Vikram Sarabhai Bhawan, Anushakti Nagar, Mumbai – 400 094. FAX : 022- 25991258

Sub: 29th meeting of the Standing Committee on Power System Planning of Southern Region
- Minutes of the meeting.

Sir,

The **29th meeting** of the Standing Committee on Power System Planning of Southern Region was held on **27th August 2009** at 10:00 AM at Taj Krishna, Hyderabad, Andhra Pradesh. Minutes of the meeting are enclosed.

The minutes are also available at CEA’s website, **www.cea.nic.in**.

Yours faithfully,

(Pardeep Jindal)
Director (SP&PA)
(Telephone No.: 011 26198092 / 26732325)
(FAX No.: 011 26102045)

Minutes of 29th Meeting of the Standing Committee on Power System Planning in Southern Region (SCPSPSR) held on August 27, 2009(Thursday) at Taj Krishna, Hyderabad, Andhra Pradesh

List of participants is given at Annex-I.

- 1.0 ED(SR-I), PGCIL welcomed all the participants. He stated that as more and more IPPs were setting up generation projects and seeking LTOA, development of optimum system was also becoming increasingly difficult. He stressed that the problem could be effectively solved through joint efforts like the platform of this standing Committee. He also highlighted lack of skilled manpower and number of adequate gangs in implementing large number of transmission projects.
- 1.1 Member(PS), CEA thanked Power Grid Corporation of India Ltd (PGCIL) for warm hospitality and excellent arrangements for the meeting. He stated that next meeting of the Southern Region Power Committee(SRPC) meeting was scheduled for 16th September 2009 and some pending issues including some LTOA transmission requirements needed to be finalized for putting up to the SRPC for approval. He said that Southern Region(SR) has good number of reservoir based Hydro Electric Project, and if SR has better connectivity with rest of All-India grid, the SR constituents can avail base power from outside the grid and at the same time back-down their hydro generation to save peak power potential. He also stated that CERC was in the process of formulating new transmission tariff regulation, therefore, the constituents may decide the transmission investments in ISTS considering technical requirements rather than present methodology of payment of transmission charges.
- 2.0 Confirmation of the minutes of 28th meeting of the Standing Committee**
Director, CEA stated that minutes of 28th meeting of the Standing Committee on Power System Planning of Southern Region, held on 15th June, 2009 at Coorg, Karnataka, were issued vide CEA's letter number 51/4/SP&PA-2009/629-638 dated July 15, 2009 and that no observations/comments were received on the circulated minutes. The minutes as circulated were confirmed by the Standing Committee.
- 3.0 Status of Under Construction / Approved Schemes:**
- 3.1 PGCIL informed about the progress of the transmission works that were being implemented by them as part of regional schemes. A copy of the implementation status is given at Annex-II. PGCIL also informed that status of progress of their works were also available at their website and they would keep updating this periodically.
- 3.2 Member(PS), CEA stated that transmission schemes of State utilities should be implemented matching with the respective generation projects and also with the development of central

sector schemes so that adequate state level network becomes available to take benefit from commissioned generating stations. Representatives of State Transmission Utilities assured to take up necessary actions in this regard.

- 3.3 APTRANSCO informed that the Bhoopalapally – Warrangal link and the Warrangal 220kV station would be completed by October 2009, and, the tendering process for the Vijayawada-Malkaram 400kV D/C line was in progress.
- 3.4 KPTCL informed that the Hassan 220kV station would be completed by October 2009. Regarding transmission system for evacuation of power from the Nagarjuna TPS(i.e. UPCL), it was informed that the 220kV inter-connections would be ready matching commissioning of first unit, and efforts would be made to complete the 400kV line to Hassan also matching commissioning of the generation project. Regarding transmission system for Yeramas and Edlapur generating station, it was informed that Yeramas generating station was getting delayed but Edlapur could come as per schedule. It was decided that KPTCL would take up with KPCL and inform CEA about status of key inputs like Land, Fuel, Environment Clearance, Ordering of Equipments etc required for the Yeramas and Edlapur generation projects.
- 3.5 TNEB informed that tendering for the transmission system for evacuation of power from the NCTPS Stage-II was in progress and would match with commissioning of the generating station.

4.0 Madhugiri – Yelahanka 400kV D/C Quad transmission line:

The Madhugiri – Yelahanka 400kV D/C quad line was agreed in the last meeting of SCSPSR held on 30-03-2009 as regional transmission system. Implementation of this line, however, could not be agreed in the 10th meeting of SRPC held on 02nd July 2009. The issue was discussed and it was unanimously agreed that, this line would be taken up by PGCIL as part of the transmission system for evacuation of power from the IPP projects (namely Coastal Energen Pvt Ltd and IND Barath Power Madras Ltd) coming up in the Tuticorin area of Tamil Nadu. This line would thus connect the Tuticorin-Salem-Madhugiri link with Yelahanka 400kV S/S of PGCIL.

5.0 The Hosur – Electronic City 400kV D/C line:

The Hosur – Electronic City 400kV D/C line was agreed in the 28th meeting of this Standing Committee, wherein, it was proposed that the line could be built using Right of Way of the existing Peenya-Singarapet 220kV line (presently Yerandahally-Hosur line). This RoW could be used for building multi-circuit towers and/or dismantling part of the line depending upon practicability. PGCIL, informed that they were facing sever RoW problem in few spans within Karnataka stretch of the line. PGCIL also opined that this RoW problem might delay implementation/completion of the line and therefore requested to explore some alternate transmission system for Electronic city. Director(Transmission), KPTCL stated that KPTCL would examine the issue and would come up with solutions in the forthcoming meeting of SRPC.

6.0 TNEB – Strengthening connectivity of SVChatram 400kV S/S of TNEB:

TNEB informed that they were in the process of acquiring more land for accommodating two more 400kV bays at their SVChatram 400kV S/S. Two options i.e. connecting SVChatram through LILO of Kolar-SPBudur 400kV S/C line (Alt-I) or through LILO of Neyveli(now via

Puducherry)-SPBudur 400kV S/C line(Alt-II) were considered. SE,TNEB stated that the Alt-II was more suitable and therefore, it was decided that TNEB would implement LILO of Neyveli(now via Puducherry)-SPBudur 400kV S/C line at SVChatram as State's project.

7.0 TNEB Transmission Schemes:

(1) Transmission system for evacuation of power from Mettur TPS Stage-III(1x500 MW) project,

(2)Transmission system for evacuation of power from wind projects in Tirunelveli/Kayathar area in Tamil Nadu, and

(3) Sholinganallur (Ottiampakkam) – Kalivanthapattu(Melakottaiyur) 400kV D/C line

7.1 Following transmission schemes of TNEB were agreed to be implemented by TNEB as State sector schemes:

7.1.1 Transmission system for evacuation of power from Mettur TPS Stage-III(1x500 MW):

1. Mettur TPS - Arasur 400 kV D/C line
2. Mettur TPS - Singarapet 400 kV D/C line
3. Establishment of 400/230 kV S/S with 2x315 MVA ICT at Mettur TPS S/S and associate 230 kV link lines.

7.1.2 Transmission system for evacuation of power from wind projects in Tirunelveli/Kayathar area in Tamil Nadu:

1. Kanarapatty (TN Wind) - Kayathar 400 KV, 400 kV D/C line.
2. Kayathar - Karaikudi , 400 kV D/C Quad line
3. Karaikudi - Pugalur 400 kV D/C Quad line
4. Establishment of 400/230-110 kV S/S with 2x315 MVA 400/230 kV ICT, and 2x200 MVA 400/110 kV ICT at Kayathar and associate 230 KV and 110 KV link lines.
5. Pugalur – Sholinganallur (Ottiampakkam), 400 kV D/C Quad line.

7.1.3 Sholinganallur (Ottiampakkam) – Kalivanthapattu(Melakottaiyur) 400kV D/C line

The Sholinganallur 400/230kV S/S of TNEB alongwith Sholinganallur (Ottiampakkam) – Kalivanthapattu(Melakottaiyur) 400kV D/C line and associated 230kV interconnection was agreed in the 23rd meeting of SCSPSR.

7.2 It was also decided that PGCIL would provide adequate number of bays in their substations at Arasur, Karaikudi, Pugalur and Melakottaiyur for implementation of above transmission schemes of TNEB.

8.0 Transmission system for evacuation of power from Udangudi TPS (2x800 MW) project:

8.1 Following transmission lines, proposed by TNEB for evacuation of power from the Udangudi TPS (2x800 MW), a joint venture project of TNEB and BHEL, were agreed:

1. Udangudi TPS - Karaikudi 400 kV D/C Quad line
2. Udangudi TPS - Kayathar 400 kV D/C Quad line .

8.2 The transmission system would be implemented by TNEB as State sector scheme.

8.3 TNEB also informed that they were not pursuing implementation of the Tuticorin TPS Stage-IV (2x500 MW) project, as the mandatory clearances for this project could not be obtained. Therefore, the associated transmission lines, i.e Tuticorin TPS - Karaikudi 400 kV D/C Quad

line and the Tuticorin TPS - Kayathar 400 kV D/C Quad line, were not being implemented.

- 8.4 It was also decided that PGCIL would provide adequate number of bays in their substation at Karaikudi for implementation of above transmission lines of TNEB. PGCIL may also explore possibility of acquiring more space at their Karaikudi 400kV S/S for use of future regional projects.

9.0 KSEB Proposal for Mysore-Kozhikode 400kV D/C line:

KSEB representative stated that as Mysore-Kozhikode 400kV D/C line was not getting completed due to RoW problem, therefore the Trissur(N) –Kozhikode 400kV D/C line might be planned to meet growing loads in the Northern part of Kerala. Member(PS), CEA stated that this new link could be considered with Kudankulam-II project. KSEB would explore possibility of ROW/Forest clearance issues in the Trissur(N) –Kozhikode corridor and would send detailed proposal in this regard.

10.0 Transmission system for evacuation of power from Simhadri-II TPS of NTPC:

- 10.1 Transmission system for evacuation of power from the Simhadri-II (2x500MW) NTPC was agreed in 25th meeting of SCSPSR with the provision of utilizing spare capacity of APTRANSCO'S existing Vizag-Vemagiri- Narasaraopeta 400kV transmission corridor. It was also decided that when Vizag TPS or any other generation of Andhra Pradesh in that location is firmed up, the transmission corridor of APTRANSCO shall be spared and new lines could be constructed under Regional system strengthening scheme. Accordingly, NTPC was asked to apply for open access to APTRANSCO on behalf of beneficiaries.

- 10.2 GM, NTPC stated that APTRANSCO, during the 10th SRPC meeting held on 2nd July 2009, had indicated that initially the Agreements could be considered for a period of five years and further extension would be reviewed later. He further stated that, in case Vizag TPP(or any other plant in vicinity) comes-up during the period of agreement, there might not be sufficient time to plan and implement alternate regional transmission system within the agreement period. He, therefore, proposed that transmission system for Simhadri-II should be planned now and could be taken up by CTU for implementation in such a way that transmission system is ready before expiry of the said agreement period to ensure uninterrupted evacuation of power from Simhadri-II.

- 10.3 Member (PS), CEA stated that once the generation plan (in and /or around Vizag TPS) is firmed up, it would be possible to plan and implement the required transmission system by the time that plant is commissioned. APTRANSCO agreed to convey, well in advance, about their generation plan allowing sufficient time to CTU to plan and implement alternate transmission system for Simhadri-II as regional transmission scheme.

- 10.4 Member(PS), CEA stated that APERC should be petitioned to determine tariff for the specific lines and not the complete transmission system of APTRANSCO. CE, APTRANSCO agreed to do the needful.

11.0 Issue Regarding LTOA and Signing of BPTA for the Nagarjuna TPS(by M/s UPCL) in Nandikur, Karnataka:

Director(Transmission), KPTCL informed that M/s UPCL (i.e. Nagarjuna TPS) was establishing a Thermal Power station with 1015 MW Capacity at Nandikur in Udipi District. Out of this, 915 MW of power would be utilized in Karnataka and remaining 94 MW would

be sent to Punjab State Electricity Board. He further said that KPTCL was constructing 400kV quad moose DC line from UPCL switch yard to Shanthigrama, Hassan (PGCIL) sub station and 220 kV DC line to 220kV Khemar sub station. In this regard, he stated that, UPCL had been asked to sign Bulk Power Transmission Agreement(BPTA) with Power Grid Corporation of India for the whole capacity of the project. He also informed that UPCL was also considering selling power to Kerala. During discussions, it was suggested that Punjab might sign BPTA in proportion to its share from the project for sharing transmission charges for SR, WR and NR. Kerala, if it signs PPA with UPCL might share SR charges in proportion to its share from UPCL and Karnataka might share SR transmission charges in proportion to the power they intend to draw at Mysore. The issue was further discussed and it was decided that the issue needed to be resolved by Commercial Committee of SRPC.

12.0 Discussions on the Inter State Transmission System(ISTS) Issues in respect of Long Term Open Access Applications(LTOA) made to the Central Transmission Utility(CTU) for Projects in Southern Region:

12.1 Requirement of transmission systems for providing long term open access to following five projects in Southern Region were discussed:

- (i) East Coast Energy Pvt Ltd (4x660 MW) in Srikakulam , AP
- (ii) NCC Power Project Ltd. (2x660 MW) in Srikakulam , AP
- (iii) Coastal Energen Pvt Ltd (2x660 MW), Tuticorin area Tamil Nadu
- (iv) IND Barath Power Madras Ltd (4x350 MW), Tuticorin area Tamil Nadu
- (v) Singareni Collieries Company Ltd (2x270 MW) near Ramagundam, AP

12.2 Regarding the Singareni Collieries Company Ltd (2x270 MW) near Ramagundam, AP, the project representative informed that they were considering increasing capacity of the project and also that they might sell power to Andhra Pradesh for which AP would build the transmission system. Therefore, they were asked to approach APTRANSCO for LTOA in the State's system.

12.3 Following transmission system for other four projects was decided:

12.3.1 Transmission System for East Coast Energy Pvt Ltd (4x660 MW) and NCC Power Project Ltd. (2x660 MW) projects in Srikakulam Area, Andhra Pradesh:

- (i) LILO of one circuit of Behrampur– Gazuwaka 400kV D/C line at East-Coast switchyard
- (ii) LILO of 2nd circuit of Behrampur – Gazuwaka 400kV D/c line at NCC switchyard
- (iii) East Coast – Angul 765 kV 2xS/C line (one circuit via NCC).
- (iv) Angul – Jharsuguda - Dharamjaigarh 765 kV 2xS/C line.
- (v) Provision of 2x1500 MVA, 765/400 kV transformers at East Coast
- (vi) Provision of 1x1500 MVA, 765/400 kV transformers at NCC

12.3.2 Transmission System for Coastal Energen Pvt Ltd (2x660 MW) and IND Barath Power Madras Ltd (4x350 MW) projects in Tuticorin of Tamil Nadu:

- (i) Establishment of 765 kV pooling station in Tuticorin, Salem and Madhugiri (north of Bangalore) (initially charged at 400kV)
- (ii) Coastal Energen generation switchyard- Tuticorin pooling station 400kV D/C Quad / High capacity line
- (iii) Ind-Barath generation switchyard - Tuticorin pooling station 400kV D/c Quad/ High capacity line
- (iv) Tuticorin Pooling station – Salem Pooling station 765kV D/C line initially charged at 400kV
- (v) Salem pooling station–Madhugiri pooling station 765kV S/C initially charged at 400kV.

- (vi) Madhugiri – Yelahanka 400kV Quad D/C line
- (vii) Tuticorin pooling station – Tuticorin JV 400kV D/C quad line

12.3.3 Common Transmission System for transfer of power from SR to WR & NR:

- (i) Sholapur – Pune 765 kV 2nd S/C line(1st already covered under transmission associated with Krishnapatnam UMPP).
- (ii) Establishment of 765kV station at Orai by LILO of one circuit of Satna – Gwalior 765kV line.
- (iii) Establishment of 765kV station at Buland Shahar by LILO of Agra – Meerut 765kV line.
- (iv) Establishment of 765kV station at Sonipat by LILO of Bhiwani – Meerut 765kV line.
- (v) Jabalpur Pooling station – Orai 765kV S/C line.
- (vi) Orai – Bulandshahar – Sonipat 765 kV S/C line.

12.3.4 Transmission charges for all the transmission systems at 12.3.1 and 12.3.2 above would be shared by all the IPPs of Southern Region who have applied for LTOA in proportion to the capacity for which LTOA had been applied/granted. These charges would be transferred to their beneficiaries as and when confirmed.

12.3.5 Transmission charges for the item no. (i) and (ii) at 12.3.3 above would be shared by all the IPPs of Southern Region who have applied for LTOA for exporting power to Western Region and Northern Region. These charges would be transferred to their beneficiaries as and when confirmed.

12.3.6 Transmission charges for the item no. (iii), (iv), (v) and (vi) at 12.3.3 above would be shared by all the IPPs of Southern Region who have applied for LTOA for exporting power to Northern Region. These charges would be transferred to their beneficiaries as and when confirmed.

12.4 Detailed Minutes of the discussion on LTOA application would be issued by PGCIL.

List of participants for the 29th meeting of Standing Committee on Power System Planning held on 27th August at Taj Krishna, Hyderabad, Andhra Pradesh

<u>Sl. No.</u>	<u>Name and Organization</u>	<u>Designation</u>
<u>Central Electricity Authority (CEA)</u>		
1.	V Ramakrishna	Member (PS)
2.	Ravinder	Chief Engineer (SP&PA)
3.	Pardeep Jindal	Director (SP&PA)
<u>Southern Region Power Committee (SRPC)</u>		
4.	M.L.Batra	Member Secretary
5.	Asit Singh	Executive Engineer
<u>Power Grid Corporation of India Ltd (PGCIL)</u>		
6.	I.S.Jha	ED
7.	S K Dutta	ED – SR-I
8.	D G Sohony	ED – SRTS-II
9.	Umesh Chandra	ED - Commercial
10.	Pankaj Kumar	GM(Engg.)
11.	V Shekhar	GM(O&M)
12.	Prashant Sharma	AGM(Commercial)
13.	M.R.V. Holla	AGM /Engg
14.	Dilip Rozekar	Chief Design Engr.(Engg-SEF)
15.	S Ravi	DGM SR-I
16.	U V S Rao	DGM SR-I
17.	A Naga Raju	CM (Commercial)
18.	A C Sankaraiah	CM / OS
<u>National Thermal Power Corp. (NTPC)</u>		
19.	A. K. Gupta	GM(PE-Elect./C&I)
<u>Neyveli Lignite Corp. (NLC)</u>		
20.	T. J. Murlidharan	GM/PSE
<u>Transmission Corp. of Andhra Pradesh Ltd. (APTRANSCO)</u>		
21.	M.Jayachandra	CE(PS)
22.	M Balasubramanyam	DE/System Studies
<u>Karnataka Power Transmission Corp. Ltd. (KPTCL)</u>		
23.	Pratap Kumar	Director(Trans.)
24.	K Paramesha	AEE (Elect)
<u>Kerala State Electricity Board (KSEB)</u>		
25.	K.S.Antony Thomas	Dy. Chief Engineer
26.	S R Anand	Executive Engineer
<u>Tamil Nadu Electricity Board (TNEB)</u>		
27.	K. Thangachamy	SE/System Studies
28.	S Ravichandran	Executive Engineer

Annex-II

Status of Southern Region New Schemes

Sl. No.	Name of Scheme & Elements	Standing Committee Approval	FR Date	Investment approval by POWERGRID Board/CCEA	Target as of now	Comments/Reasons of delay
1.	<p>Neyveli TS-II Expn Tr. System</p> <p>a) Neyveli TS-II Expansion – Neyveli TS-II 400 kV 2xS/c</p> <p>b) Neyveli TS-II- Pugalur 400 kV D/c</p> <p>c) Pugalur – Madurai 400 kV D/c</p> <p>d) Udumalpet – Arasur 400 kV D/c</p> <p>e) LILO of Ramagundam-Khammam 400 kV S/c at Warrangal</p> <p>f) LILO of Neyveli – Sriperumbudur 400 kV S/c at Pondicherry</p> <p>g) Establishment of new 400/220 kV substations at Pugalur, Arasur, Pondicherry and Warrangal with 2x315 MVA transformer each.</p>	16 th Meeting on 20.01.03	Aug, 03	CCEA Approval – January, 2005	Sep' 09	– Generation delayed - Revised schedule – Feb' 10 / Jun' 10
2.	<p>Kaiga U-3&4 Tr. System</p> <p>a) Narendra – Davangere 400 kV D/c line</p> <p>b) LILO of existing Kolar – Sriperumbudur 400 kV S/c at new 400/220 kV substation at Melakottaiyur</p> <p>c) Provision of 2nd 315 MVA, 400/220 kV transformer at Hiriyur 400/220 kV substations each.</p> <p>d) Establishment of new 400/220 kV substations at Melakottaiyur with 2x315 MVA, 400/220 kV transformers</p> <p>e) Mysore – Kozhikode 400 kV D/c line</p> <p>f) Establishment of new 400/220 kV substations at Kozhikode with 2x315 MVA, 400/220 kV</p>	16 th Meeting on 20.01.03	Oct, 03	CCEA Approval – March, 2005	Commi ssioned Except Mysore-Kozhiko de line and Kozhiko de substati on	– Mysore – Kozhikode is getting delayed due to ROW (50 Kms) of coffee plantation in Karnataka portion, forest clearance problem in Kerala & Karnataka portion. The matter is taken with highest level with State Governments and further being followed up through intervention of Ministry of Power.

Sl. No.	Name of Scheme & Elements	Standing Committee Approval	FR Date	Investment approval by POWERGRID Board/CCEA	Target as of now	Comments/Reasons of delay
	transformers					
3.	Kudankulam Tr. System a) Kudankulam – Tirunelveli 2x400 kV D/c lines with Quad conductors b) Tirunelveli – Udumalpet 400 kV D/c lines with Twin conductors. c) LILO of both circuits of Madurai – Trivandrum 400 kV D/c line at Tirunelveli d) Tirunelveli – Edamon 400 kV Multi-ckt line (2 ckts of quad & 2 ckts of twin) e) Edamon – Muvattupuzha 400 kV D/c line (with Quad conductors) constructed in new ROW corridor f) Muvattupuzha - North Trichur 400 kV D/c line with quad conductor g) Establishment of new 400/220 kV transformers with 2x315 MVA transformers at Tirunelveli and Muvattupuzha. h) Transformation augmentations with 1x315 MVA transformers at Udumalpet and Trivandrum 400/220 kV substations.	18 th Meeting on 05.03.04	June, 04	CCEA – May, 2005	Dec' 09	<ul style="list-style-type: none"> – Generation project is delayed to Dec'09. – System to be commissioned Matching with generation project. – Tirunelveli 400/220 kV S/stsn and LILO of Madurai – Trivandrum commissioned – Severe ROW problems facing in Edamon – Muvattupuzha – North Trichur corridor
4.	System Strengthening – VII a) Establishment of 400/220 kV new substation with 2x315 MVA transformers at Karaikudi. b) LILO of one circuit of Madurai-Trichy 400 kV D/c line at Karaikudi c) Establishment of 400/220 kV new substation with 2x315 MVA transformers at Hassan. d) LILO of one circuit of existing Talguppa-Neelmangla 400 kV D/c line at Hassan	18 th Meeting on 05.03.04	July, 04	April, 05	Sept' 09	<ul style="list-style-type: none"> – Karaikudi substation and associated LILO commissioned. – Hassan substation and associated LILO ready for commissioning

Sl. No.	Name of Scheme & Elements	Standing Committee Approval	FR Date	Investment approval by POWERGRID Board/CCEA	Target as of now	Comments/Reasons of delay
5.	Kalpakkam PFBR Tr. System a) KPFBR - Kancheepuram 230 kV D/c line b) KPFBR – Arni 230 kV D/c line c) KPFBR – Sirucheri 230 kV D/c line d) 2 nos of 230 kV bays each at Kancheepuram, Arni and Sirucheri 230 kV substations of TNEB	20 th Meeting on 07.10.04	Mar, 08		Nov'11	– Commissioning schedule for D/c line to Sirucheri is Apr' 11 – Complete system by Nov' 11
6.	Transmission System associated with Tuticorin JV a) Tuticorin – Madurai 400kV D/c line (Quad conductor)	22 nd Meeting on 18.06.07	Jun, 07	Feb, 09	Feb' 12	– Award placed in Feb' 09
7.	System Strengthening – VIII a) 11 nos. of 63 MVAR Reactors (7 bus reactors + 4 line reactors)	23 rd Meeting on 22.01.07	Mar, 07	Jan, 08	Mar' 10 - Nov' 10	– Award placed in July 08 – Implementation work are in progress
8.	Transmission system associated with Chennai NTPC-TNEB JV TPS a) LILO of Alamanthy – Sriperumbudur 400 kV D/c line at North Chennai TPS JV	24 th Meeting on 18.06.07	Nov, 07	May' 08	July'10	– Activities in progress, Gen. likely by Nov'2010 as per 10 th SRPC minutes
9.	System Strengthening – IX a) Hassan - Mysore 400 kV D/c line	24 th Meeting on 18.06.07	Aug, 08	Feb, 09	Feb' 12	– Award placed in Mar' 09
10.	System Strengthening – X a) Establishment of new 400/220 kV substation at Bidadi with 7x167 MVA 400/220 kV transformers and 1x63 MVAR bus reactor b) LILO of one circuit of Neelamangla – Somnahalli 400 kV D/c line at Bidadi 400 kV substation	24 th Meeting on 18.06.07	Sept, 08			– FR prepared – Investment to be taken shortly

Sl. No.	Name of Scheme & Elements	Standing Committee Approval	FR Date	Investment approval by POWERGRID Board/CCEA	Target as of now	Comments/Reasons of delay
11.	System Strengthening – XI a) Establishment of new 400/220 kV substation at Chulliar (Palakkad) with 2x315 MVA transformers and 1x63 MVAR bus reactor. b) LILO of both circuits of Udumalpet - Madakathara (North Trichur) 400kV D/C line at Chulliar 400 kV substation	25 th Meeting on 28.03.08	Oct, 08	Feb, 09	Jul' 11	– Award placed in Mar' 09
12.	System Strengthening – XII a) Establishment of new 400/220 kV substation at Yelahanka with 2x500 MVA transformers and 1x63 MVAR bus reactor. b) LILO of Neelamangla-Hoody 400kV S/c line at Yelahanka 400kV substation c) LILO of Somanhally-Hoody 400kV S/c line at Yelahanka 400kV substation	27 th Meeting on 03.03.09	July, 09			– FR prepared – Investment to be taken shortly
13.	Simhadri-II Tr. System a) Simhadri – Gazuwaka 400 kV D/c with 95 degC conductor temperature Revised Tr. System a) LILO of both circuits Gazuwaka-Vemagiri 400 kV D/c line at Simhadri-II.	28 th Meeting on 15.06.09				– Transmission System revised in 28 th Standing committee meeting – Revised FR under preparation
14.	Supplementary Transmission System associated with Vallur TPS a) Extending 400 kV D/c of original Vallur TPS transmission system from LILO point to Malekottaiyur by suitably utilizing part of the LILO of Kolar-Sriperumbudur line at Melakottaiyur. Kolar – Sriperumbudur 400 kV shall be restored as direct lines.	28 th Meeting on 15.06.09				– FR under preparation

Sl. No.	Name of Scheme & Elements	Standing Committee Approval	FR Date	Investment approval by POWERGRID Board/CCEA	Target as of now	Comments/Reasons of delay
	<ul style="list-style-type: none"> b) Establishment of Tiruvelam 765/400kV switching station initially charged at 400kV c) Tiruvalam (POWERGRID) - Chittoor 400kV D/C quad line 					
15.	<p>System Strengthening – XIII</p> <ul style="list-style-type: none"> a) Establishment of new 400/220 kV substation at Madhugiri with 2x500 MVA transformers with provision of establishing a 765/400kV substation in future in the same switchyard. b) Gooty – Madhugiri 400kV D/c line c) Madhugiri – Yelahanka 400kV D/c Quad line d) Hosur – Electronic City 400kV D/c line (This line could be built using Right of Way of the existing Peenya-Singarpet 220kV line (presently Yerandhally-Hosur line). This RoW could be used by building multi-circuit towers and/or dismantling part of the line depending upon practicability.) SRTS-II may examine the feasibility of using RoW of existing 220kV circuit for implementation of this line with help of TNEB & KPTCL. e) 1x63 MVAR bus reactor at Madhugiri 400/220 kV substation 	28 th Meeting on 15.06.09				– FR under preparation